

**ABSTRACT**

In a bio-separation system, emitted radiation signals representative of sample analytes are collected from the detection zone axially along the separation medium, instead of through the boundary walls of the detection zone or the separation column. In one embodiment, emitted signals are collected via an optic fiber that extends from the proximity of the detection zone along the detection collar. According to another embodiment, a single dual purpose (excitation and emission) fiber or dual fibers (one for excitation radiation and the other for emitted radiation detection) are incorporated into detection collar. In another aspect of the present invention, the detection zone is located at a widened zone along the separation channel. In a further aspect of the present invention, the optical detection configuration may be scaled up and implemented in a multi-channel CE system that comprises multiple capillary separation channels.